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agenda item 6.2)



Informal Group on Gaseous Fuelled Vehicles (GFV)

Report to 60th GRPE June 2010



Meetings GFV Group

- 9th GFV meeting
 - **28 April 2010 Brussels (CLEPA)**
- 10th GFV meeting
 - **08 June 2010 Geneva**



Agenda items GFV

- **NMHC + CH₄ versus THC in R.115**
 - **Retrofitted NG vehicles**
- **Dual-fuel (diesel-gas) HDV**
 - **Test requirements R.49 (OEM)**
 - **Requirement R115 (retrofit)**
- **Mixed-fuel (petrol-gas) LDV**
- **Improvements of R.115**



NMHC + CH₄ versus THC Retrofitted NG vehicles

- CH₄ correction factor for Retrofit NGV justified?
- 2 small evaluation studies performed :
 - TNO: 4 vehicles – JRC: 2 vehicles
 - To determine the CH₄ conversion of
 - a methane optimized catalyst
 - a petrol optimized catalyst



Result test programme

- CH4 efficiency Methane Catalyst: ~ 97%
- CH4 efficiency Petrol Catalyst: ~91%

$$\text{THC} = K \cdot \text{MHC} + \text{NMHC}$$

The factor K could be calculated as
$$K = \frac{1 - \eta_{\text{CNG}}}{1 - \eta_{\text{GASOLINE}}}$$

- Average K factor = ~0.31
- Applicability under consideration
 - Legal aspects EC



Dual-Fuel (diesel-gas) HDV

- **Growing interest for Dual-Fuel HDV**
 - Workshop 30-31 March 2010 Brussels
- **OEM requirements → R.49**
- **Retrofit provisions → R.115 and R.49**
- **Dual Fuel approaches for NRMM**

- **Proposed actions in GFV group:**
 - Investigation of the different Dual-Fuel types and test-procedures needed
 - Task-force for HD-DF
 - starting with R.49
 - Parallel provisions for R.115 will be investigated to.



Mixed-fuel (petrol-gas) LDV

- No emission requirements for petrol-gas (bi-fuel) vehicles who can use gas and petrol not only separately but also at the same time: “mixed fuel types”.
- First proposal for the calculation of THC and CO₂ emissions.
- A special task-force will investigate technologies and test procedures



Improvements R115

- **Ongoing activity in the GFV group to update and improve the R.115 text.**
- **A separate proposal for clarification in R115 concerning the applicability of Euro 5 TA vehicles was tabled in the 10th GFV.**
 - In existing situation will R.115 suppl. 4 (retrofit) be applicable for Euro 5 from august 2010.
 - The proposal for more clarification resulted in a fundamental discussion on retrofit versus OEM gas vehicle solutions of Euro 5 vehicles.
 - Discussion will continue in GFV group



Next GFV-meetings

- GFV meeting planned in October 2010 (no date/place confirmed yet)
- Request for a half-day meeting in conjuncting with 61th GRPE.
